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## ABSTRACT

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A profile-based system is described for verifying the functionality of a device design. In one embodiment, the system includes a profile generation module, a coverage measurement module, and a pattern generation module. The profile generation module operates from a rule set that represents the design specification and any applicable standards, and a profile mode that specifies "interesting" aspects of test patterns for device design verification. The profile generation module determines an ordered set of variable values that specify a test pattern, and produces a profile that intelligibly describes the interesting aspects of the test pattern. The coverage measurement module analyzes the profile to determine coverage, and the analysis results may be operated on by the profile generation module to determine a profile for an improved test pattern. The pattern generation module converts the profile into a test pattern having the interesting aspects specified in the profile.

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